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DESCRIPTION AND CONTENTS

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RECORDED SOUND

The Journal of the British Institute of Recorded Sound
Volume 1 No. 2 June 1961

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★

The third issue of *Recorded Sound* will be devoted to records of literature and will include articles by Aldous Huxley and J. W. Lambert, the text of a speech on Einstein by Bernard Shaw, and a Dylan Thomas discography.

★

Authors of articles to appear in future issues include Edward Sackville-West, Frank Howes, Timothy Eckersley, Yehudi Menuhin, Denis Matthews, Gilbert Rouget and Geoffrey Cuming.

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Books reviewed in *Recorded Sound* are normally added to the Institute's library and are available for reference.

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The Institute will be closed for staff holidays from 5 to 21 August (both dates inclusive).

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What the Composer expects from the Listener

DONALD FRANCIS TOVEY

MY title for these talks *—" *What the Composer expects from the Listener* " — suggests a number of difficult questions, most of which depend more upon the composer than upon the listener. I am much more frightened of you than you can possibly be of me. I have often myself administered the click of my switch on my portable wireless which so ruthlessly garoted the speaker; or I might have been more particular in my title—I could have given offence to every living composer who doesn't agree with me by proposing to talk of " What the *sane* composer expects of the listener ", and it is not I who have implied that any of you are merely the ordinary listener. As with the British jury, I have to tell you what the judge says : that you are the sole judges of the case. Those of you who can bear with me long enough to find out what I am talking about will come to the conclusion that my subject is " what the classical composer expects of the lover of music " ; and this expresses the widest possible view of the relation between composers and listeners. For the classical range covers the music of all the centuries that the world has not suffered to let die ; whereas if I take the music of today, I have in the last resort to use only my own judgment in selecting from indefinite numbers of internecine unorthodoxies that clamour for attention ; and I should have been in exactly the same position in any other century, past or future.

One thing that is certain about every period of art, is that the art could not exist unless at least a hundred times as much were produced as had any chance of interesting posterity. The wise man at any period is thankful enough for the existence of good, practical pleasure-giving artistic standards, and if his limitations are such that contemporary signs of genius shock him, he is nevertheless wiser than the connoisseurs who are so fastidious as to reject everything that does *not* shock them.

The wise man at any period will cheerfully acknowledge that a small fraction of one per cent of what obtains a hearing in his own day will survive. He will presume to know what he likes, and take advantage of such technical and artistic experience as enables him to give reasons for his likings, but if he is cautious he will not publish any of his conclusions as to what particular works will survive. The wisest English contemporaries of Handel may have preferred him to Bononcini and may have disagreed with the rhymester who said that " compared to Bononcini Mr. Handel's but a ninny ; while others aver that he to Handel isn't fit to hold a candle. Strange that such difference there should be, betwixt Tweedledum and Tweedledee "—but neither parties ever heard of Bach.

In order to simplify and secure some unity for these talks, I have selected two classical works from which I shall draw most, but not all of my illustrations : one a supreme masterpiece of what is sometimes called absolute music, that is to say, music with which it is a waste of time to speculate as to the non-musical ideas which may have influenced the composer ; and the other a supreme masterpiece of choral music in which the words are in themselves objects of the highest veneration, and their relation to the music is of vital importance to every aspect of the musical form.

You and I have no time to deal with the views of persons whose taste is so superior that they deny the greatness of Beethoven's Seventh Symphony and of Brahms' German Requiem. Not even if some of you share in those denials—and in any case I am not dealing with tastes but with facts as I have found them in the course of my musical experience. Whatever one's taste about the music of Beethoven and Brahms, there is no difficulty in convincing a non-technical British jury that those composers were musicians of considerable experience and successful in gaining the ear of a music-loving public for many generations.

I shall spend most of your time in these talks in showing that what such composers expect of the listener is what can reasonably be expected of an ear that is not defective in some category of its perception of sound and that a surprising amount of professional knowledge that is forced upon lovers of music by certain kinds of comment is irrelevant and distracting even where it is true.

I am not going to analyse Beethoven's Seventh Symphony and Brahms's Requiem continuously or systematically, but I am going to take illustrations mainly from these two works in every category with which I have to deal. Now the first bogy with which the non-technical listener is usually frightened is counterpoint. We cannot proceed far in the analysis of a highly-organised piece of music without discovering that an enormous proportion of it consists of several different things going on at once. This is in fact one of the main differences between Western music of the last 500 years and oriental music, together with all that has been discoverable of ancient music. When the musician claims to be able to follow simultaneously every thread in the polyphonic tissues that range anywhere between Bach's two-part inventions to the double chorus and independent orchestra of the Hosanna in his B minor Mass and beyond those twelve parts to the forty of a certain famous Motet by Tallis, the modern psychologist smiles derisively and says that his science proves that it is impossible to attend to more than two things at once ; but there the sixteenth century theorists who codified the rules on which Tallis composed, and codified them after Tallis had composed, are entirely in agreement with the modern psychologist. They never considered more than two notes at a time, and the father of modern acoustic science, Helmholtz, found their theories far more in accordance with his discoveries than the modern theories which claim to build whole chords into an elaborate system. Moreover, to attend is not merely to hear. For my own part, I doubt whether in listening to music I trouble to attend to even two things at once, although the psychologist tells me that I can. There is no limit to the sounds that you can hear at once. If there is a fault anywhere in Tallis's 40-part Motet, it is a fault between two of the forty parts. As such, it may be gross enough to attract attention : if more than two parts at once can be considered faulty, then there are more faults than one, but the subject of the listener's attention is the total effect of the forty voices. Tallis's art is good acoustic cookery : we may presume that a supremely gifted cook appreciates a dish in a more analytic way than the connoisseur who condescends to no professional knowledge of the objects of his taste. But if the flavour has been ruined by an incredibly small pinch too much or too little of a seasoning, the professional cook will condemn the result as ruthlessly as if he knew nothing about the skill that went to making the rest of it.

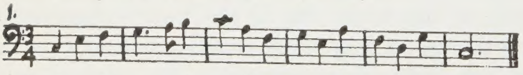
Counterpoint was plausibly but misleadingly described some generations ago by an Oxford professor as the art of combining melodies. The definition is not untrue, but it is seriously misleading in that it tempts the listener to think that it is his duty to trace the individual melodies : a duty which is imposed upon him only in special cases as in such things as fugues ; and then in all sane music always lightened by his being given every opportunity to understand the melodies separately before they are combined.

A better definition of counterpoint is that it is the art of producing a mass of harmony in which the notes of all the chords are formed by good melodic lines. Of course, this ultimately begs the question because the stern logician then asks us what harmony is, and the only possible answer to that is that it is ultimately good counterpoint. Fortunately this kind of circular argument is not unsound, for harmony and counterpoint and rhythm, and perhaps a few other categories which I will not trouble either to ascertain for myself or to inflict upon you, will eventually make up the whole musical cosmos ; and when your arguments not only depend upon each other but comprise the universe, it is perfectly legitimate to argue in the circle that they depend upon each other because they make up the uniformity of nature, and that they prove the uniformity of nature because they all depend upon one another.

This I learnt taking essays to the Master of Balliol in 1896.

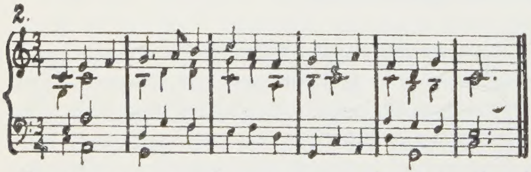
Let us now proceed to a musical demonstration ; if good harmony is good counterpoint and vice versa and if we are not required by the most complex classical or modern music to attend to more than two things at once, or even to more than one thing that forms the whole, it ought to be possible to devise a counterpoint that simply vanishes into harmony or melody when you hear it as a whole. Here now is a reasonably melodious bass (*Ex.* 1).

1.



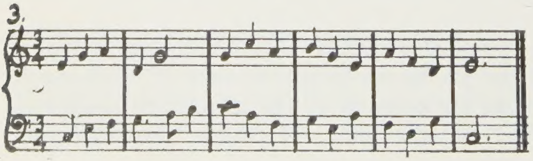
I play it as a bass but it will pass quite acceptably as a tune which I harmonise accordingly (*Ex.* 2).

2.



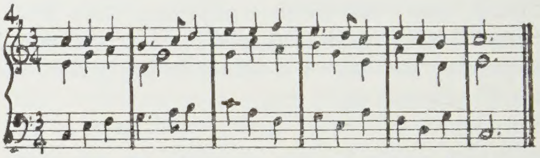
Let us put another tune on the top of this bass. You mustn't expect great richness of harmony from merely two parts that are moving at the same pace. This will be the skeleton of harmony, but it is a skeleton that stands fairly upright and the second melody isn't bad (*Ex.* 3).

3.



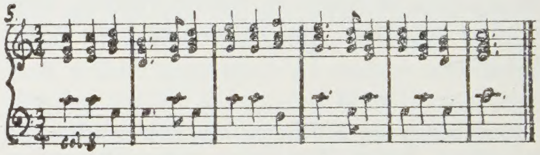
It even imitates the bass in a manner which learned persons might call canonic. I will now put a third part on the top. You will not find that you have any occasion to attend to three things at once or to admire the canonic detail. You will receive a sensation with which you are extremely familiar. You may suspect that the style is slightly highbrow, but only towards the end of the phrase and that is because, being restricted to three parts, I have to harmonise with a certain lean, athletic economy which sounds faintly sophisticated. But I think you will recognise at once that you are not expected to listen to the three threads (*Ex.* 4).

4.



In short, this is merely a normal and respectable way of harmonising our national anthem and I think the most naïve listener will agree that it is somewhat better than this somewhat non-contrapuntal makeshift, though this is grammatically correct (*Ex.* 5).

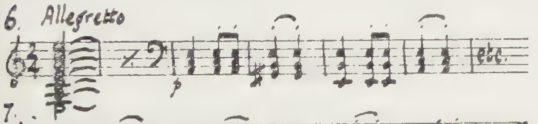
5.



You see then that unless melodies move at different paces their simultaneous combination may disappear in the ordinary decencies of smooth harmony. If the composer wishes you to attend to two melodies at once, he will in the first place have to see that they can attract attention by contrasts of rhythm and perhaps by making harmony that is not uniformly smooth. If his art-form is based on the assumption that your main occupation will be to attend to combinations of melodies, such as in the case of a fugue or in the case of most of the great forms of choral music, he will also see that you have plenty of opportunity of knowing the melodies separately before they enter into combination. It so happens that Beethoven's Seventh Symphony and Brahms's Requiem contain two of the most impressive and elementary examples of a combination of melodies that have ever been written. Beethoven's Seventh Symphony was as a whole much disliked on its first appearance. Contemporary critics quoted the phrase, " Caviar to the general ", but its allegretto was an instant popular success. Dismal hack writers earned twice Beethoven's income by arrangements of it in such forms as male-voice part-songs with titles such as *" The Monk's Prayer "* and anybody who may be surprised to learn that most of the movement is in double counterpoint will enjoy the thrill of Monsieur Jourdain when he discovered that he'd been talking prose all his life. Double counterpoint, triple and quadrupal counterpoint, etcetera are by the way not merely combinations of two, three or more melodies but combinations so devised that any of the melodies can become the bass of the whole. In the allegretto of the Seventh Symphony, as the combination grows in volume till it pervades the whole orchestra, it becomes several octaves deep so that it is impossible to say which melody is above and which below. Here with its introductory chord is the first melody which, as you see, is nearly monotone (*Ex.* 6).

Now if I repeat this as Beethoven does in a higher octave for clearness and add a few details to the inner parts, not much is gained so long as my details are in the same prevalent rhythm (*Ex.* 7).

6.



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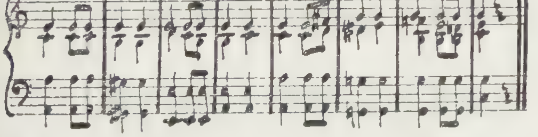

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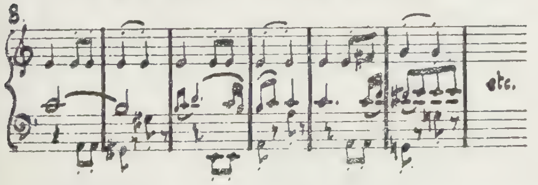
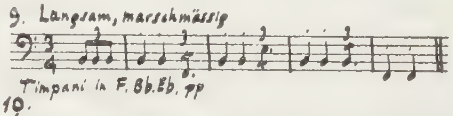


But now listen to Beethoven's combination and let those of you who do not already know this well-known classic more than you wish to try to imagine that anybody can ever have had the slightest difficulty in following it as a combination of two melodies. Do not over-rate the responsibilities implied by that word " attention ". You have discharged the duty of attention thoroughly enough when you have recognised that the theme in dactyls and spondees or in less technical language the dum-dee-dee-dum-dum is being maintained over the new melody to which you can listen with undivided mind. There is no more difficulty in this than in recognising at a single taste that there are peaches and pears and apricots in a fruit salad (*Ex.* 8).

My example in Brahms's Requiem is equally impressive, but not so drastically simple, for neither of the themes approaches monotone. You can hear more things than two, though in the last resort you need attend only to the whole. The solemn rhythm of the drums is an impressive third element (*Ex.* 9) which does not disturb the other two but becomes an essential part of the general impression. First, the orchestra states its theme, then the chorus delivers its own theme. I will not trouble to set them out more separately than you will find them in Brahms. You will not have the slightest difficulty in recognising that, though I am a poor singer, I am singing a solemn tune and that I am at the same time repeating the orchestral introduction.

9.



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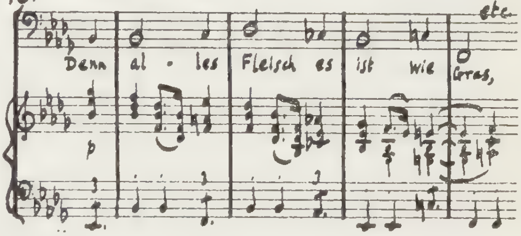
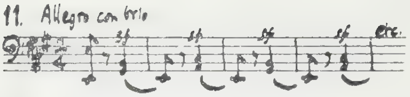


Here the lecturer played and sang from the beginning of ' Den alles Fleisch ', in the manner shown by Ex. 10.

Of course you must not expect that all counterpoint will be as directly impressive as these examples or that the composer will never demand more alacrity from the listener in seizing his points. Here for instance is the theme of the finale to Beethoven's Seventh Symphony, a scandalously Bacchic tune which one of the kindest but vulgarist musicians I ever knew in my youth sternly reprobated as vulgar (*Ex.* 13). For the most part, the bass is the merest fundamental support (*Ex.* 11).

11.



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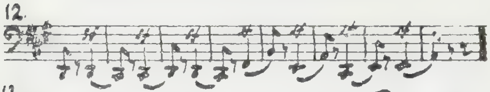

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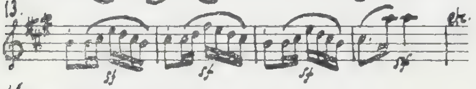

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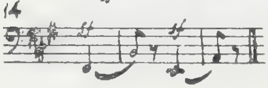


But at the end of the tune Beethoven is compelled to make it move (*Ex.* 12).

And later on in the development of the finale he transposed this moving bass (*Ex.* 14) to the treble and certainly has his own pleasure in thus raising it to the dignity of an audible theme. Moreover he would applaud the acumen of the listener who, on a first hearing, saw the point, but it is a mistake to suppose that if you miss this point that the course of the development becomes unintelligible. It is no case where the eminent detective plucked a thread from the hearthrug and after scrutinising it through the powerful microscope which he wore as a monocle, placed it in a small envelope which he signed and sealed in the presence of witnesses. There is nothing mysterious in putting a marching iambic rhythm above instead of below the whirling semiquavers of the main theme.

And if you recognise that this iambic rhythm has also been anticipated in its melodic shape by the bass so much the better for you. At the risk of a certain amount of blasting in your reception, I will let fly with this theme with something of the energy that Beethoven inspires.

Here the lecturer played on the piano the first twenty bars, with repeats, of the Finale of Beethoven's Seventh Symphony.

Later in the development when he has got into a remote key :

Here the lecturer played the C major section of the development of the same movement.

And so on.

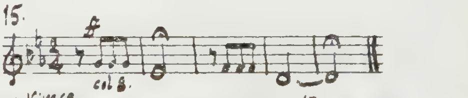
Well I think that you will not find really that the composer expects you to hear incredibly remote or abstruse things. There is nothing of which I as an experienced musician have a greater horror than abstruseness in analysis. I find, in my own experience with pupils, and sometimes with musicians, that it takes far more trouble to remove spurious abstruseness than to inculcate a sense of fine detail. Let us, as I see I have still time at my disposal and yours, try a few more illustrations of contrapuntal points from the Seventh Symphony. For instance, here is the theme of the first movement :

Here the lecturer played the first eight bars of the Vivace of the 1st movement of Beethoven's Seventh Symphony.

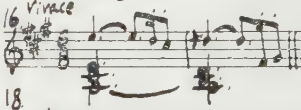
Now themes when they are used in highly organised music are not always used as a whole. It would be very tiresome if a long melody could never be alluded to without dragging in the whole of its regular structure and the consequence is that small recognisable portions of themes become broken off and are used separately and built up into other phrases, from which arises the — I don't wish to use strong language — but at all events the highly reprehensible heresy that music is built up of small figures. There is a very famous play which was brought into fame in England by a very famous actor who represented Beethoven as sitting at the pianoforte and tapping his head and producing from thence the inspiration (*Ex.* 15, *bar* 1).

From which after profound thought he proceeded to derive (*Ex.* 15, *bar* 2).

15.



16



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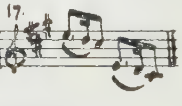
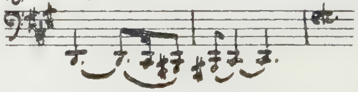


18.



And so we are told that in this method the whole of the C Minor Symphony was constructed as the Forth Bridge has no doubt been built from one rivet to the next. Now the real truth of the matter is that big musical paragraphs will break up into themes and that if the composer chooses to make a big musical paragraph that is permeated with a single figure that is a special case. Well, this figure (*Ex.* 16, 17) is an example of the kind.

Those three notes come in a great many different aspects and I will conclude with the most impressive aspect of all, that which in the coda or peroration of the first movement relegates it to the bass (*Ex.* 18).

And there you hear it during a long crescendo, on the surface of which very little but monotone happens :

Here the lecturer played the full score of the 1st movement from the beginning of Ex. 18 to the end.

At all events I hope that in this first talk I have relieved some of you of an unnecessary load upon your consciences and left you more free to enjoy music as Beethoven and Brahms would hope that you should enjoy it.

* * *

From a series of talks entitled *Music and the Ordinary Listener* broadcast in the BBC National Programme on 28 May, 1937 ; printed by permission of the executors of the late Sir Donald Francis Tovey and of the BBC.

A recording of this lecture with illustrations played on the piano and sung by the lecturer may be heard at the Institute on BBC records 14803-5.

Schnabel

EDWARD SACKVILLE-WEST

WHAT was it that made Schnabel not only a great pianist with a large public for whom he could do no wrong, but a musical intellect who commanded the respect of the entire musical world ? To begin with, I think it was his immense seriousness, his refusal to play any but the very best music, the meticulous care he bestowed on small details (what actors call " throw-away " lines), the impression he made that he was re-creating every bar of the music. Also his playing recalled Busoni's in its ability to evoke orchestral effects, by a clever use of the pedals, and by a dynamic range that was both wider and more supple than that of most pianists.

It was by such capacities as these, which in Schnabel's case amounted to genius, that he exerted some of his sway over his large audience ; but the quality that most of all won him his unique position with knowledgeable pianists of his day was intellectual power. This enabled him so to grasp the form of a musical work, whether a sonata or a four-minute piece, that he could convey it to the listener, without any seeming effort, while at the same time delighting him by the detailed beauty of the material that went to the building of the total structure. In other words, when Schnabel played, one was always aware of the wood, though one was looking at the trees.

This architectural quality is at its most impressive where one would expect to find it—in large-scale works—but it is also to be found in a short piece such as Schubert's Allegretto in C minor, D.915, which was written in 1827 as a memento for a young friend who was leaving Vienna to take up an official position in Venice. Though not well-known, it is simple, tender, regretful ; musically worthy to rank with the songs of the *Winterreise*. Schnabel plays it as if it were indeed a song : we hear the lilt of the verse, perceive the length of the lines and their division into stanzas ; yet every phrase is joined to the next and the three sections are artfully drawn together into a whole. (HMV DB 3755 or DB 21353 ; LP re-issue COLH 33).

If we listen to that I think we can see why Schnabel liked to call Schubert " the last of the great composers ".

And now, before mentioning other examples of his admirable qualities as an interpreter of classical music, I must pause to notice what seem to me to be his defects. These were not inconsiderable. For one thing Schnabel's technique—at any rate until the last years of his life—was in some respects deficient. His playing had none of the virtuosity we associate with pianists like Rachmaninov or Horowitz. Considering most of the music he elected to play, this was not in itself a disadvantage. If, in playing a concerto by Mozart or Beethoven, you turn the passage-work into so much glittering decoration, you spoil the intended effect, which is usually modulatory. Schnabel never made such a mistake. On the other hand, he occasionally essayed works such as the concertos of Brahms, which do demand a certain type of virtuosity ; and then the effect, though as usual very thoughtful, was rather gloomy and laborious.

It was not however just his lack of virtuosity that was disconcerting about Schnabel : his performance was often marred by runs, arpeggios, and other pianistic devices, executed in an untidy, dishevelled manner that was strikingly at variance with the scrupulous care he devoted to all other aspects of the music. He also had a trick that to some of his admirers was peculiarly maddening, of playing groups of two or more semiquavers in a clipped fashion that halved the note values and sounded very careless—to say the least. Two rather bad samples of this kind of thing are the upward arpeggios in the Finale of Schubert's posthumous Sonata in B flat major, D.960, which Schnabel plays as if they were spread chords (HMV DB 3754 or DB 21356, side 8 ; LP re-issue COLH 33) ; in the second movement (Allegro vivace) of Beethoven's Sonata in F sharp major, Op.78 (HMV DB 1659 or DB 9749, side 3) there are passages where the pairs of semiquavers sound as if snipped off with scissors.

Such defects as these suggest to me that Schnabel cannot have had what is called a " natural " technique. There is no particular virtue in possessing this : some of the greatest pianists have been without it, while others so gifted never trouble to get below the surface of the music they play. But Schnabel was an extremely hard worker, and it is only fair to say that in his last years his technique cleared up very markedly. He relinquished his irritating mannerisms almost entirely and his passage-work became altogether tidier and less liable to run into a tangle.

Another fault remained with him to the end : I mean an inclination to pedantry. Schnabel was in every sense a clever man, and because his own comprehension of the music he loved was essentially analytical, he sometimes played it as if his audience must necessarily know nothing at all about it. His recording of Bach's Toccata in C minor, for instance, suggests a lecturer in a classroom. (HMV DA 1613-4).

Similarly, he could not be relied on to take a simple, lyrical view of a simple, lyrical piece. His account of " At the fireside " from Schumann's *" Scenes of Childhood "* is a case in point. (HMV DB 6503).

His playing here is surely strangely obvious and insensitive : square as a box, with all the sequences phrased exactly alike, and dynamically rigid. It gives me the impression that the pianist, who held very strong opinions on all subjects, did not think much of Schumann.

On the other hand, when it comes to someone whose music he venerated, Schnabel's touch could be wonderfully delicate. It would, I think, be difficult to do better than he does in Schubert's Moment Musical in F minor, D.780, No. 3 (HMV DB 3359, side 3). What a contrast there is between this and the Schumann ! Yet the two pieces, in mood as well as in form, are much alike.

When the lyrical content was not simple, but consisted of an expatiation on some theme in a sonata movement, then Schnabel never failed to astonish us by the way in which he made the music flower out, beautifully and naturally, while at the same time never losing sight of the intellectual structure—the harmony, the modulations, the forward development of the piece. There is a remarkable example of this in the first movement of the Schubert sonata which I have already mentioned—that in B flat major, D.960 (HMV DB 3751 or DB 21353, side 2 ; LP re-issue COLH 33).

Schnabel's profound feeling for sonata form made him an ideal soloist in classical concertos. Here his supremacy in Beethoven was such as to overshadow his no less magisterial performances in Mozart's concertos. These splendidly perfect works of art had, with a few exceptions, been virtually neglected for a century and more, when Schnabel reintroduced them, between the wars. To play them properly requires extreme neatness and a kind of discretion that was only just coming back into fashion among pianists when Schnabel made his name. The solo parts are brilliant enough, but in a manner that is very different from the grand, rhetorical style invented by Beethoven for his last concerto. The range of feeling displayed in these works of Mozart is extraordinarily wide, but—as later in the music of Chopin—their emotional power is contained by the sinewy grace and by the strict symmetry of the musical framework. The lay-out of the piano parts is light and airy, but not in the least brittle, and there can be no greater mistake than to deliver them in the finicking, cat-on-hot-bricks manner that was for so long considered appropriate to Mozart. It is to Schnabel's eternal credit that, if he did not invent, he at least re-established, more consistently even than Edwin Fischer, the correct approach to Mozart's concerto style.

To see how this works out, I suggest that you should take the C major concerto, K.467, and listen to the development section of the first movement. (HMV DB 3099, side 2 ; LP re-issue COLH 67). This is a fine example of Schnabel's historical imagination. The actual themes are delivered with firm and lucid eloquence, but without emphasis, and the passage-work is stitched like gold thread into the symphonic texture. There are two cadential passages, ending in orchestral tuttis. If this were a late Romantic concerto, the soloist would at these points rush frantically off the stage, wait in the wings while the orchestra said its rumbustious say, then rush on again, under a spotlight, and with a dagger in each hand start declaiming at the top of his voice. Nothing of that kind here. The pianist dovetails off into the orchestra, remains quietly where he is and takes up his cue with no fuss or effort at an effective entrance. It is worth remarking, I think that in a Mozart concerto Schnabel displayed none of the untidiness, or the mannerisms, that seemed to be brought out in him by the more leonine solos in Beethoven's concertos.

The Andante of Mozart's C major concerto, K.467, is possibly the most beautiful slow movement Mozart ever wrote—an elegiac poem that seems to me a complete answer to those critics who insist that Mozart was not a great melodist. Almost anybody at all versed in music can feel the shape of the heavenly tune ; but it needs an exceptional performer to marry it to the bass. Schnabel's handling of the lightly murmuring triplets, and his phrasing of the tune, are a perfect example of his understanding of classical poetry. From beginning to end the pulse of the movement is kept as regular as the beat of a heart at peace with itself. (HMV DB 3101 ; LP re-issue COLH 67).

Another short illustration of Schnabel's capacity to sustain a very slow tempo is the opening of the Larghetto from Mozart's last (B flat major) piano concerto, K.595. Schnabel was much criticised for his extreme deliberation here ; but I feel myself that he was justified, because the length of each beat is so beautifully calculated, and the touch so smooth, that we are caught up into the air, so to speak, and kept in breathless expectation, right up to the end of the theme (HMV DB 2250, side 4 ; LP re-issue COLH 67).

Schnabel first made his name in London, it is strange to recall, by his performance of a Brahms concerto. But it was as a supreme interpreter of Beethoven that he consolidated his position with the general public, and no account of his playing or of his records would be complete without a reference to some of the qualities which made his Beethoven playing so remarkable.

His range of interpretative style was no less wide than the range of experience, of emotion, and of musical expression which Beethoven himself displayed in the keyboard works of his three periods. Any of Schnabel's Beethoven Sonata records taken from the early, middle and late periods would illustrate this wonderful interpretive range : I think two recordings which very well demonstrate his profound insight into Beethoven are the Sonata in A flat major, Op. 110 and that in F sharp major, Op. 78.

The preludisings in Beethoven's late sonatas are something of a puzzle—not simply to musical critics, but to pianists who have to make them sound convincing. Oviously they are meant to sound dramatic—even in the operatic sense, for they contain fragments of recitative ; so that at a first glance we might assume them to have a literary significance. But Busoni, whose playing of these sonatas marked an epoch in the understanding of Beethoven, asserted that these mysterious passages were in fact the least literary of all—that they were music commenting on music. Now I think there is something in this paradoxical claim : these extraordinary introductions do seem to be telling us something, not about the visible world or even about human emotion, but about the nature of musical imagery, of note values, rests, loudness and softness, chord formation, and so on.

It is with wonderful subtlety that Schnabel, in Op. 110, suggests this idea, of music meditating upon itself. (H.M.V. DB 1958, side 4).

As a contrast, the first movement of the Sonata in F sharp major, Op. 78—for which Schnabel had, I believe, a special affection—is played in a manner which reveals all the humanism contained in the deceptive simplicity of Beethoven's most classically sober manner. I suggested above that Schnabel could make a really simple, lyrical piece appear dull or laborious by playing it in an over-intellectual, explanatory style. But in this sonata movement he keeps a perfect balance between head and heart, form and content. Each sentence, each paragraph, is exquisitely punctuated ; the chaste, crystalline touch, the discreet pedalling, the melifluous, unhurried rhythm, bear witness to an identification of the pianist with the music that is the highest imaginable tribute an executant can pay to creative genius. (HMV DB 1659-60 or DB 9748-9).

The Berlin Phonogramm-Archiv

KURT REINHARD

THE Berlin Phonogramm-Archiv was founded by the famous psychologist, Carl Stumpf, who had been engaged in the study of the music of the non-European peoples for a considerable time when, in 1900, he made some recordings of the court orchestra of Siam, which gave some public performances in Berlin in that year.

Professor Stumpf deposited these recordings—made on cylinders—in the Psychological Institute of Berlin University, and during the next few years collections of cylinders made by ethnologists and other travellers increased the size of the archive until it became necessary to set up a separate administration for it.

In 1905 Stumpf appointed to the post of head of the archive a former student who had become his assistant, Erich Moritz von Hornbostel, who remained in this position until 1934.

The Archive, which received funds from both public and private sources, was able up to the outbreak of the first world war to provide many field-workers with Edison phonographs, it being understood that in return their recordings should be made available to the Archive.

By 1906 it had about 1,000 cylinders, and it was actively engaged in exchanges with other institutions in various parts of the world. To facilitate these exchanges the archive produced electrotype matrices from which as many copies of the records as were necessary could be made.

The Archive remained in the Psychological Institute in the Palace of Berlin until 1934, but in 1922 the state assumed responsibility for it and from that date its administration was in the hands of the Academy of Music. These changes did not affect the Archive's work, which continued to be the collection of records of non-European music and its scientific evaluation.

Most of the work was undertaken by Hornbostel himself, but Otto Abraham also wrote books and articles based on the Archive's material and there were various special activities. These including the production—in co-operation with Georg Schünemann—of some 1,000 recordings in the prisoner-of-war camps during the first world war, and the formation of a " demonstration collection " of 120 cylinders containing the best and most typical examples of music from all parts of the world contained in the Archive ; this " demonstration collection " was available for sale.

In 1934 the Archive was attached, as a separate department, to the Berlin Museum für Völkerkunde, and Berlin-Dahlem became its home. It had by this time become known and respected throughout the world, and when the second world war broke out its collection amounted to about 11,000 cylinders, and it had been responsible for 69 publications based on previously unissued material in the Archive.

During the second world war most of the cylinders and commercial recordings belonging to the Archive were stored in various places, for safety's sake. Those which had been sent to what became the Western occupation zones were returned to Berlin in 1951 and in this way the Archive regained about ten per cent of its former cylinder collection. With the addition of copies preserved in other institutions and some gifts of old cylinders, the Archive now possesses perhaps one-fifth of the total number of recordings that belonged to it before the war. It is probable that a considerable part of its former collection does exist, in various places, but so far the Archive has been unable to regain possession of it.

After the foundation of the Berlin Freien Universität in 1948 and the appointment of the author as professor of ethnomusicology at the University's Institute of Music, the Archive was transferred there. But in 1950 a further move was made, back to the Museum für Völkerkunde in Berlin Dahlem ; as the state of the accommodation worsened, the Archive was transferred to a depository at Berlin-Lichterfelde at Gardeschützenweg (71-101).

The reconstruction of the collection, especially in recent years, has made considerable progress. Many copies have been made of material collected by foreign field-workers, and in addition a great deal has been collected by students working under its own auspices. Only a few commercial recordings have been obtained, but the frequent exchanges with foreign institutions and radios, and collaboration with individual collectors, have been very fruitful.

For the last ten years daily use has been made of the Archive by research-workers who wish to listen to non-European music and it continues to provide every facility for students at the Institute of Music.

An expansion of the Archive's work and indeed a realisation of a long-held aim was the formation of a collection of musical instruments, as part of the Museum, which became possible with the transfer to more suitable accommodation in 1959. This work continues under the direction of Dr. Dieter Christensen, Assistant in the Phonogramm-Archiv, who is engaged in compiling an annotated catalogue of the instruments.

At the time of writing the best sections of the Archive's collection of records are as follows : Turkey (recordings by Bartók, Eberhard and Reinhard) ; Lapland (recordings by Laade, Christensen, Munser and Seipoldy) ; Jugoslavia (recordings by Christensen) ; Kurdistan (recordings by Christensen) ; Corsica (recordings by Laade) ; Tunisia (recordings by Laade) ; New Guinea (recordings by Von Schmitz and Fischer) ; and the Ellice Islands, Oceania (recordings by Koch).

Many of these records have already been scientifically studied, and some of these studies will, it is hoped, shortly be published.

The following information will show that in spite of the great losses sustained by the Archive during the war, it has regained both in the quantity and quality of its collections the position which it held in 1939.

Number of records :

	Original recordings			*Commercial records*	*Total*
	Tapes	*Discs*	*Total*		
Europe	3,165	243	3,408	729	4,137
Near East	1,940	358	2,298	581	2,879
Africa	499	839	1,338	596	1,934
Asia	369	435	804	878	1,682
Oceania	960	410	1,370	166	1,536
America	301	128	429	567	996
TOTALS	7,234	2,413	9,647	3,517	13,164

The number of published papers based on material in the Archive has gone up by 24 to a total of 93, and two further publications are in the press.

Information about the Archive and its history may be found in the following sources :

Carl Stumpf : Das Berliner Phonogramm-Archiv. Internationale Wochenschrift, 1908.

James Mooney : The Berlin Music Archiv. American Anthropologist 17, 1915.

Erich Moritz von Hornbostel : Das Berliner Phonogramm-Archiv. Zeitschrift für Vergleichende Musikwissenschaft I, 1933.

Marius Schneider : Das Phonogramm-Archiv des Museums für Völkerkunde. Archiv für Vergleichende Phonetik, Erste Abt., Bd. II, 1938.

Kurt Reinhard : Das Berliner Phonogramm-Archiv. Die Musikforschung 6, 1953.

Kurt Reinhard : "The Berlin Phonogramm-Archiv ". Journal of the International Folk Music Council 6, 1954.

Kurt Reinhard : Das Berliner Phonogramm-Archiv. Baessler-Archiv, Neue Folge 9, 1961.

The Performance and Care of LP and Stereo Records

CECIL WATTS

THE difficulty I find in talking about the gramophone record and how it works is to know roughly how much can be taken as already understood.

It would probably be a waste of your time to tell you that there is only one groove on each side of a record, and that it spirals from the outside edge to the centre. Mathematical equations expressing the forces involved in playing it are virtually useless to convey practical information, so I would like to commence this talk by reading a description of "High Fidelity from Records" from a recent magazine article : " Sheer perfection is reached by the Hi-Fi enthusiast when he turns up the controls fully and puts on the supreme test record —a disc with blank grooves. Listening in rapt attention for the least sign of undesired sound he has at last achieved the dream of dreams— a machine that will play in complete silence". The miracle is that it sometimes happens !

Let me continue : " These antics may be better understood if we stop to consider the fantastic job that a record player has to do : from the sound engineer's point of view a musician playing a note is merely making the air vibrate. If he plays a high note the air vibrates rapidly ; if he plays a low note it wafts to and fro slowly. For each note there is a *rate* of vibration, which is called its frequency.

The bottom note on a piano, for instance, has a frequency of 27 cycles per second ; that is, it vibrates to and fro 27 times a second. At the other end of the scale, the top note on the piano vibrates over 4,000 times a second and indeed the individual shape of each vibration is different for each instrument even though they sound the same note.

If you imagine the sound pattern of vibration of a single violin multiplied by the presence of twenty violins, with the vibrations of all the other orchestral instruments added, you will have an idea of the commotion in the air of a concert hall when a symphony orchestra is playing.

The *combined* vibrations form *one* very complex sound pattern. What the recording engineer has to do is to translate this complex sound pattern into wiggles of the groove in a gramophone record."

Now what the article means by " the shape of the vibrations being different for each instrument " is important ! Consider this " wiggle in the record groove " as representing perhaps a sound from one instrument. If the sound is a smooth continuous musical note, the wiggle or waveform in the groove will curve smoothly and change its direction at an even rate as it passes under the stylus. Such a note could be produced by a flute or an organ.

Now consider say the same note played on a

(*Lecture given at the Institute on January* 18*th*, 1961)

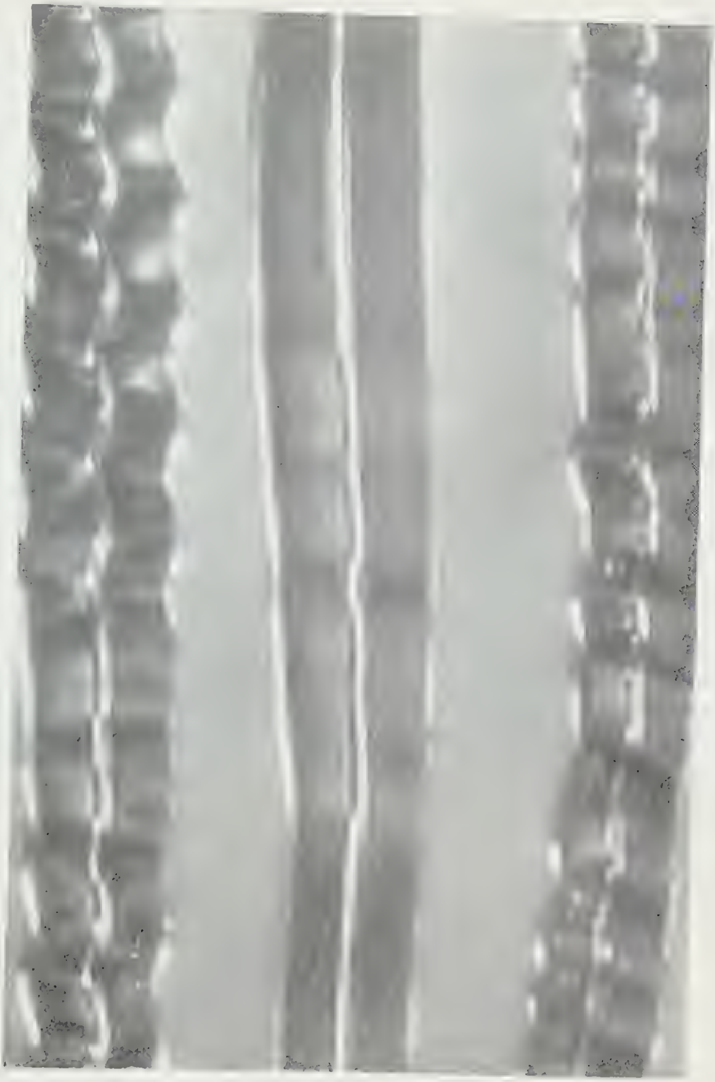


Fig. 1. Groove of a long-playing record (magnified).

Fig. 2. The author with the model referred to in this paper.

piano: the note is the same—that is the frequency at which it vibrates will be identical—but the shape of its waveform will be quite different. At the commencement of the note the hammer strikes the string, producing a steeper wavefront, and a more violent acceleration results where it changes direction; only if the note is sustained long enough does the waveform gradually smooth itself to an even vibration. The waveforms of some sounds with violent accelerations indeed frequently resemble the teeth of a saw.

"When we lower the gramophone needle onto a long playing record" — I continue to quote from the same article — "we force its tiny point to clatter along a track two and a half thousandths of an inch wide, where it gets buffeted from side to side by the turns and twists of the wiggles like a miniature bobsleigh. The vibrations generate a tiny electrical current in the pick up; this is increased several thousand times by an amplifier and injected into a loud-speaker which shakes back and forth, and the result is supposed to be exactly the same marvellously complex pattern of sound vibrations that perturbed the air in the concert hall."

Well now, it could be true! The bit however which is going to concern us is to establish as far as possible the facts about "this tiny point clattering along its track." Of course it does nothing of the kind. It is the groove which travels along underneath the tiny point and, in passing, attempts to force it to follow the recorded waveforms. If the point is obstinate—being too stiff or heavy — the groove cannot manage the job and gets some of its wiggles ironed out or knocked off. The lighter and more flexible the pick-up movement and the smaller the radius on the stylus, the easier is the task of the groove to make the stylus follow exactly every intricate little contour of the recorded waveforms. Hence the efforts of designers to reduce the stiffness and mass of pick-up movements to obtain the highest possible fidelity in tracing the groove with the least damage to the recorded sound pattern.

The mechanics are beautifully simple. Just a spherical tip snugly resting between two inclined surfaces, self-adjusting to fit the stylus employed; and should the recorded velocities become too great for the stylus to respond to, it is forced up the inclined wall or even over the top of some waveforms without serious distress to the listener.

The actual size of the groove in a long-playing record is less than the thickness of a human hair, and the tip of the stylus is smaller still; this makes it difficult perhaps to appreciate the effects of all the forces involved when the record is played.

The groove in the original master disc from which records are pressed is cut with a cutter having a "Vee" shaped profile—the included angle being 90°. The apex is usually slightly radiused. The deeper the groove is cut, obviously the wider it becomes across the top from shoulder to shoulder.

The photomicrograph accompanying this paper (Figure 1) is of such a groove viewed from above. It is a small section of a stereo record magnified 250 times. The average width across the top of the groove is approximately 60 microns—or less than 3 thousandths of an inch, whereas a human hair averages about 4 thousandths of an inch. This depth allows the largest L.P. stylus in use today—that is 0.001in. radius (or one thou.) to ride approximately midway in the groove. The use of this size is today mainly confined to lateral records. In stereo a smaller radius is desirable and improved pick-up design permits the use of 0.00075in. (or $\frac{3}{4}$ thou. radius). The stiffness and mass in some specialist pick-ups have been reduced still further to permit the use of 0.0005in. radius (or half thou.).

Now observe even at this magnification the smooth surface of the groove walls in the photograph. Examining it from the narrow part of the centre groove at the bottom, for the first inch or so you will see that the centre groove narrows as it approaches the crest of a low frequency sound modulated mainly on the left-hand channel, i.e., the left-hand wall of the groove. The thick white line at the bottom of the groove is light reflected from the curved radius. The crest of the waveform is reached at about 1¼ inches from the bottom of the photograph where it changes direction and light is reflected from the walls of the groove, disclosing the indentation of a stylus having sufficient pressure to indent the walls almost from the top to the bottom. There is obviously a deeper impression on the left-hand wall than on the right.

The impression of a half thou. stylus at this magnification would only occupy about an $\frac{1}{8}$ of an inch to either side of the groove bottom, so the evidence here is that the stylus used was larger. I should say that it had a radius of one thousandth of an inch.

Following the groove still further one finds that about halfway up (just about the centre of the photograph) the groove has a little recorded transient wiggle. (The reflection from the bottom radius gives the true amplitude of this and the light reflected from the shoulder of the left-hand wall shows that the modulation is mainly on the left-hand channel). Tracing the indentation of the stylus however it can be seen that it has taken a straight course through this little transient which has been somewhat ironed out in the process.

This is the normal behaviour of a record being accommodated to the reproducer used. Had a more sensitive pick-up been used, the impression of the stylus would probably have shown that this transient (occupying less than a ten thousandth part of a second) had been faithfully traced.

Observe now the groove to the left of the picture. Although not so simple to follow, the same thing has happened more or less to halfway where a very violent high frequency sound commences. This is one of those waveforms like a saw edge which only the smallest stylus could trace properly.

See how the large stylus behaves. The first two cycles where the sound is building up show nothing unusual. I suspect the first violent wavefront kicked the stylus into the air but the three top right-hand wavefronts have been severely blunted as evidenced by the white patches reflected from the now flattened surfaces as the stylus ploughed from crest to crest. No doubt some reproduction of the sound occurred, but the finer detail—in fact all the harmonic content of the sound—has not been reproduced. This is the condition which causes the grey appearance on records of some loud passages when examined with the naked eye. The small fragments of groove material thus scraped off form a dust which if not removed collects along the bottom of the groove.

Perhaps the most remarkable fact about these observations is that although the record has not been used under the best conditions, it has accommodated itself to those which existed, and is still likely for a long time to give the best reproduction that the pick-up employed is capable of providing.

Another point to note is the uneven pressure observed on the groove walls. During recent years I must have examined thousands of records under the microscope, and almost without exception similar evidence is visible. I shall refer to this later on.

To pursue our subject further it is necessary to follow a little simple arithmetic. A record revolving at 33⅓ r.p.m. travels under the stylus, at the outside edge of a 12-inch record, at about 16 inches per second and of course at about half this towards the centre of the record. As I have already said, the lowest note on the piano has a frequency of 27 cycles per second, so each cycle will occupy just over half an inch of groove length.

We do not have to be very exact about this ; the important thing that I want you to note is that with each octave the frequency is raised and the wavelength halved, so that by the time we get to the top of the piano, that is 7 octaves above the lowest note, the waveform is as small as the normal stylus and towards the centre of the record it can only just follow the general outline of the waveform and sometimes even has to ride over the top.

It is possible to spend many hours studying the situation now before us. It can be shown that frequencies as high as 15,000 cycles per second are faithfully recorded in the groove, and the electrical response of pick-ups can equal this; but a major limiting factor in extracting all the delicate details of the recorded sound is the size of stylus necessary to provide robust equipment for domestic use.

Here is one advance that has been forced by the requirements of stereo, where the groove also varies in size as the modulations rise and fall, requiring a stylus which must be smaller in order that it can remain in the groove on the crests of the waveforms.

Now if the shape of the groove in all makes of record had a "Vee" form the problem of using a smaller stylus would be somewhat simplified, but there are millions of records in use and still being issued in which the groove bottom is radiused to such an extent that a half thou. stylus could easily ride along the groove bottom without making proper contact with the walls.

It is unfortunate that there is little information from the makers on this subject, and with the exception of the Decca Company, which notably employs a "Vee" shaped groove, it is still a matter of experiment to find the smallest stylus which can be used consistent with minimum distortion.

Can I now refer to the model which I am exhibiting (Fig. 2). We are dealing with stereo as well as lateral so let me "dress the stage" as it were.

In front of us is this enlarged model of a tiny section of a groove; imagine that the concert hall with its musicians is behind it—right at the back. In between there will be some microphones, the recording room, and the record factory; the model in front is a small section of the end product of a recording session, and a complete record at this scale would measure some 5,000ft. across. I could never rotate it or move the stylus at audio frequencies, so for this demonstration the movements must be in very slow motion. It is also necessary for you to imagine that the groove is moving towards you as the record rotates.

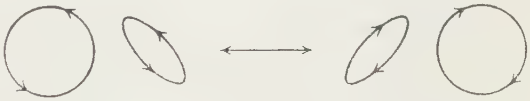
Even the smallest armature and stylus in use today—having say a $\frac{1}{4}$ of an inch overall length would extend to some 12ft. in diameter and rise over 100ft. in the air, so it is apparent from its relative size to the groove that a large effort is still required to vibrate it.

The radius on the stylus tip is roughly equivalent to half a thou. and it can be seen to ride almost at the bottom of the groove. If the groove bottom were radiused to any extent it would in fact appear to touch all round underneath the stylus.

Observe the various changes in stylus motion which occur:

FIG. 3

EFFECT OF SIGNAL POSITION ON STYLUS MOTION



These movements in practice are changing with each fraction of a second.

One of the chief disadvantages in using smaller stylii is that the foreign matter which collects in the groove is in proportion then much larger.

Dust is always present in the atmosphere, and only when the particles are large can we see them; even without the assistance of static attraction which most L.P. records possess, a lot must fall on the record surface and collect in the groove. With a small stylus there is little or no room for it to pass underneath, so it has to be either collected in a little clump or bounced over by the stylus which causes annoying extraneous noise and distortion. Airborne cellular fragments are usually too large to get right into the groove and they mainly lie on the surface until pushed aside or collect round the stylus.

At this magnification of the model they would look like telegraph poles or large trees, and they can and often do form a bunch large enough to obstruct the movements of miniature pick-ups.

The most harmful form of dust is formed of mineral or crystalline particles which become broken down to provide a rough gritty path for the stylus. Many of these particles are sharp enough to become embedded in the groove material, and it is very difficult to remove them.

Washing is not always a good thing—in fact the impurities in water can leave a precipitation in the groove which is often worse than the original condition.

At this scale a drop of water on the record would be deep enough to swim in and the precipitation from it when dried would approximate to a liberal sprinkling of sand or granulated sugar. The smaller the stylus employed the greater is this nuisance, as it destroys all chance of obtaining a silent background.

There are now several record cleaning cloths, tissues and accessories available to us ; indeed over the past five years much of my time has been occupied with the problem involved in the cleaning and treatment of records. I still think that the most difficult of these problems is to get the users of the various accessories now available to employ them to their best advantage.

May we consider first the use of a damp cloth. For a normal person using an average quality record player this is all that may be deemed necessary. If an attempt is made to use a dry cloth, as fast as the dust is wiped off one side a strong static charge will be generated and the dust will cling all the tighter.

Slightly damping the cloth with water provides a temporary leakage path for any static charge, and the dust usually collects on the cloth. If the cloth is used too often there will come a time when the accumulated dust is just being transferred from one record to the next.

The degree of dampness is very important. It is surprising how differently instructions are interpreted by different people—however intelligent they may be. I often receive specimens of records which are claimed to have been cleaned only with a barely damp cloth — on which there are large areas of dried mud. Of course the background noise will be high ! The free moisture has spread into the groove, especially where it has been wiped straight across, and has left a gritty residue in the path of the stylus.

Any free fluid applied to a record is usually harmful. Record manufacturers supply impregnated cloths and tissues for those who desire something more efficient than the scarcely damp cloth.

Decca supply an impregnated cloth ; there is also the Emitex tissue, and the Philips Discleaner which is another impregnated cloth.

The subject of dust behaviour in static conditions is a very involved one, and most confusing. There is no short explanation for the fact that under a stated static condition some dust is attracted and some repelled.

The various agents used for impregnating record cleaning materials have known characteristics. Some are cationic in nature and some anionic—meaning that applied friction will induce either a positive or a negative charge in them. It is also known that static is akin to magnetism in that opposite charges attract each other while like potentials repel. These agents all evaporate very slowly if at all, and remain stable for long periods.

Water of course is a good conductor, and incapable of holding a static charge. It behaves as a temporary leak to any charged surface rather as if the terminals of the millions of tiny accumulators holding the charge were shorted.

Some antistatic agents have the property of attracting and absorbing moisture to form a similar leakage path. I trust this rather brief description will give you a slight understanding of the purpose of the different antistatic agents employed, each of which has some advantage.

As regards their application I confess I am still unable to hold a record while using these cloths without leaving fingermarks on the record, so while the turntable manufacturer might not approve I find it easier to treat a record while it rotates on the turntable, assisting its rotation if necessary with a finger on the label. This method I find also permits an even application.

The Philips Discleaner should perhaps be used only very occasionally, but it is safe to use either the Emitex tissue or the Decca cloth quite frequently without producing an excess accumulation of the agent on the record surface. The Philips Discleaner is in my opinion over-generously impregnated with an extremely efficient antistatic agent which can become greasy on the record if used to excess.

Unfortunately a cloth or tissue is unable to penetrate very far into the groove, and in an effort to ensure the complete removal of all dust from the groove I developed the accessory which I dubbed the " Dust Bug ". It was used at first to clean the groove during examination under the microscope and was so efficient for this purpose that it was produced for general use.

It has a small tuft of nylon bristles shaped at their tips to penetrate to the bottom of the groove and rake out any dust while the record is played. A plush pad is incorporated which collects the dust and is maintained at a lower electrical potential by being slightly moistened with a dilute solution of ethylene glycol in distilled water. Any static in the record is discharged by this the instant before the brush contacts the dust.

It is not intended that any of the fluid should be transferred to the record surface although kind friends have stated that the ethylene glycol lubricates the record, and because of this I believe many users apply excess fluid to the plush pad in an attempt to obtain this result.

A little thought should bring the realization that the outside edge of the record will receive most of this excess fluid while the centre will get none and the practice rather defeats the original design. The Dust Bug should not be considered as an antistatic applicator.

Once it was realized that a method had been found to clean the groove with certainty the Parastat was a natural development : with this it is possible to treat records more rapidly and also to provide a controlled microfilm of an efficient antistatic combined with dry lubricant which leaves no visible trace on the record surface.

Turning now to the material of which the record is composed, it is found to be flexible and relatively soft. It is easily marked and I can for instance under the microscope observe every spot where any pick-up has been placed on it.

Physicists have taken much trouble to measure the depression caused by the stylus. Using a one thou. radius indenter with a downward pressure of 10 grammes the indentation measures just short of half a thou., while if the pressure is reduced to one gram it is just half this amount—let us say 5 microns. Any pressure above 2 grammes we are told stresses the record material beyond its elastic limit and the surface is permanently deformed.

Statements of this kind could easily frighten us until a little thought shows that these figures are taken while the record is stationary, rather as if the depression of a water skier were measured while he was standing sationary on the water. The force required for his support on the surface is absent until he is in motion. The measurements do show however that the record material yields under pressure and indicates an elastic limit.

In actual fact the groove is always in motion—passing under the stylus—and my observations show that on an unmodulated groove the normal domestic record player having a $\frac{3}{4}$ thou. stylus with a downward pressure of 5 grammes can trace the groove with little permanent deformation, even after many playings ; but wherever the groove is modulated, extra force is required to move the stylus, and at each change in direction the groove wall is indented until there is sufficient supporting area in contact with the stylus to provide the force to move it.

It is only when the resistance of the stylus to movement exceeds the strength of the record material that the result is as already shown in the photomicrograph ; this indicates that further reduction of the mass and stiffness of pick-up movements is desirable rather than that still smaller stylii with less downward pressure should be employed.

With the best equipment today the groove distortion is reduced to very small proportions indeed, and only the most violent accelerations may cause sufficient deformation of the groove to be recognized audibly.

Stereo however, still requires a much more exact equalization of the forces at present applied to the stylus. We have seen that this is required to execute an orbital motion in translating the stereo information. We also know that the record material is within limits elastic.

It is clear then that even though the musical quality of the sound may be unaffected any uneven force causing more pressure on one wall than the other will result in a false orbital path ; it will also disturb the complimentary amplitudes of the waveforms of the two channels as well as producing a false interpretation of their phase relationships. It is unfortunate that such an uneven force is produced from all pick-up arms in use today.

Consider the friction between the stylus and groove which produces a force pulling the stylus in a forward direction. In the old days of the wax cylinder record the stylus was transported over the record by a separate lead screw driven by the motor. It was only the introduction of the more robust shellac disc which permitted the record *groove* to perform this function. It was very convenient for the acoustic tone arm to follow suit, and later on pivoted pick-up arms became the accepted method.

More recently the inherent tracing distortion of the method has been reduced by cunningly overhanging the pick-up, and it is this which in most cases now produces an inward pull resulting in the left-hand or inside wall of the groove receiving the greater pressure.

To demonstrate this we must consider the pick-up arm as if it were a piece of string connecting the arm pivot to the stylus itself. There is only one position for the string where the stylus can exert an even pressure on both walls of the groove—that is when it is at right angles to a radial line drawn from the record centre to the stylus. If the stylus overhangs this line then it pulls inwards, or if the stylus is behind then it pulls outwards. In the effort to reduce tracing distortion to a minimum pick-up arms today produce a strong inward pull.

It is not difficult to appreciate that with one wall of the groove supporting a greater proportion of the downward pressure, the other wall supports less, and the unbalanced indentation of the groove walls often amounts to appreciably more than the difference in amplitude between the separately recorded channels.

It is certain that at the moment we are only able to reproduce a small percentage of the stereo information recorded in a record groove.

Finally there is some speculation that the size of groove and stylus will become smaller still ; but this can only happen when and if the use of the half thou. stylus becomes general. If the progress in pick-up design ever permits this to happen we could, with a groove half the present size, look forward to up to an hour's performance from each side of a 12in. record with no other change of equipment—surely a most attractive idea !

The East African Swahili Committee

J. W. T. ALLEN

THE Committee was formed in 1925 under the name of The Inter - Territorial Languages (Swahili) Committee, for the purpose of standardizing the language to be used in schools and official publications. The Swahili language is spread so widely that it had, and still has, a very large number of dialects some so widely divergent as to be almost unintelligible to persons from another area. The four Governments concerned, Tanganyika, Kenya, Uganda and Zanzibar came to the conclusion that there must be one dialect recognized as official for general use. The first work of the Committee was therefore to fix the orthography, to standardize certain rules of language and to authorize the official use of books that conformed to these standards. At the same time its Secretary, the late F. Johnson, was at work on the 'Standard' Swahili Dictionary, which was published in 1939.

Despite the fierce opposition of the advocates of other dialects, one of the dialects of Zanzibar was chosen, the orthography was fixed and this dialect became the official dialect of the four territories. It spread steadily with the spread of literacy, because in the early years it was almost impossible to persuade a publisher to accept a book that had not been scrutinized by the Committee's readers and had received the *Imprimatur* authorizing its use in Schools.

At the same time the advance of broadcasting meant that the spoken word, almost always in standard or almost standard Swahili, was heard more and more widely. With the growth of literacy came naturally the rise of newspapers and periodicals and, while these did not invite the Committee to approve them, the writers in those published in East Africa had so often received their education in 'Standard' that most were in a language that would qualify for the *Imprimatur*. There are now over sixty such publications current in East Africa.

To a great extent the Committee could then feel that its initial task was accomplished. There remained however a growing volume of other work that needed to be done. With the growth of new ideas the Committee has been called upon to make an attempt to standardize new words and has produced lists of recommended terms for use in politics, professions and trades. The Committee cannot set itself up as an 'Academie', able to say this word shall and this word shall not be used ; but it can draw attention to the fact that a word for a new idea such as a ballot box or a pylon is widely current in one area and deprecate the introduction of other words elsewhere.

More recently the Committee has turned its attention to the collection and preservation, with a view to the editing and publication, of documents of historical and literacy value that are to be found. The History Sub-Committee was set up in 1958 under the Chairmanship of the late Sheikh Mbarak Ali Hinawiy, K.B.E., and has done such good work that the present organization is in danger of being swamped. Swahili, alone of African languages south of Ethiopia, had been written (in Arabic script) for some centuries before the Europeans brought their own alphabet. There are many documents of great interest and many of these are in danger of being destroyed. The Committee does its best to discover and preserve these documents and it has been found that often the owners do not wish to part with them but have no objection to their being copied. The Committee therefore is attempting to build up a library of microfilm of such documents, although it realizes that until it can find more money and staff there is no hope of reading or editing more than a fraction of its collection.

There is also a vast amount of oral tradition to be tapped and the Committee has now tape recorders that can be used to preserve the stories and epics that are still known to the older generation. This work is only just beginning and little has yet been done ; but there is every reason to hope that it will be a means of preserving a part of an interesting culture which otherwise will soon be lost.

Hitherto only the coast has been tapped. Rumours are received of material both written and oral in places far from the coast, but without funds it is impossible to visit these places with camera and recorder and to see what is there. It is, however, probable that there is much to be collected not only in East Africa but in the Congo, in the country of Tippu-Tip, whose autobiography was recently published by the Committee. This, with two poems, one on the Abushiri rebellion and one on the Maji-Maji rebellion, are examples of the sort of history that can be found. Hitherto all the History of this part of Africa has been drawn from European sources and is seen through European eyes. These three little books disclose something of the attitude of the indigenous peoples and the Arabs to the earlier European. At the same time the publication of such books gives the general reading public a chance to obtain at a reasonable price some of the literary heritage of Africa.

It seems probable that the growth of literacy and of the desire to exchange ideas will draw Swahili together and that it will become more and more a single language. The fact that the Congo uses two different orthographies neither of which is ‘ Standard ’ is regrettable and there is less uniformity in the twenty habitations of the Congo ; but the spoken and in particular the broadcast speech is certainly growing closer together and it is already possible to use this common tongue even as far as the Atlantic Coast.

* * *

Note : A copy of a tape recording of ‘ Utenzi wa AbdurRahman ’, a dramatic poem on one of the incidents of the time of the prophet Muhammad, has been deposited in the Institute by the East African Swahili Committee, together with a recording of the Makonde Litany. The text of the former is in the press and will be added to the Institute’s library in due course.

Uruguayan Music and Poetry on 78s

ENRIQUE J. MUTTONI

THIS brief note is intended merely to point out some of the more important landmarks in the panorama of the music and poetry of our nation which happen to have been recorded, and I shall limit myself to mentioning three figures—a singer of the Golden Age of Singing, a poet, and a composer—whom the perspective of time shows to have been the leaders in their respective spheres in Uruguay.

In record catalogues at the beginning of the gramophone era there is to be found a Uruguayan tenor : ironically enough, however, his name appears among " Italian singers " and it is in fact given as Giuseppe—instead of the correct José Oxilia. He seems to have been the first singer from Uruguay to have made records and he appears on cylinders and discs from the turn of the century.

He was not a red label artist, though his records were widely distributed throughout the world, and Verdi is said to have thought highly of his Otello. There is even a legend that he called him " the perfect Otello "; but if so, what place is left for Tamagno ? Whatever the truth of this story, Oxilia must have been heard by Verdi and his records at least have the historical interest of being contemporary with the original performances of the work.

Our national poet is Juan Zorrilla de San Martín, who lived from 1855 to 1931, and it is a fortunate thing that among the relatively few records of poetry—measured against the vast world output of recorded music—a few exist spoken by him.

It was a great event in the history of my country when at the unveiling of the Independence Monument in the city of Florida on May 19th, 1879, Zorilla de San Martin recited his poem, *La Leyenda Patria* (The Legend of the Homeland). Some thirty years later he recorded parts of this poem on Victor 68241 (12-inch) and 62991 (10-inch). At the same time he recorded part of his greatest poem, *Tabaré,* on Victor 62987-8 (two 10-inch) and his *Hymn to Lavelleja* on Victor 62992 (10-inch).

It seems likely that two other 10-inch records may have been made which would fill the gap in the numerical series (62989-90), but no trace of them—or of any other records by the poet—remain. His records necessarily had a limited distribution, and I only hope that some reader of this article in England or the United States or elsewhere may be able to throw some light on the question.

Our greatest composer was Eduardo Fabini (1882-1950) and some of his music was included in that recorded at the very beginning of the electric era—perhaps the first truly South American music in the new medium. Soon after the magic year 1925 the Victor Company released three 12-inch records of *Campo Overture* (Country) and *La Isla de los Ceibes* (Cluster of Silk-Cotton Trees) on records numbered 9156-7 and 9155 respectively, played by an anonymous symphony orchestra conducted by Vladimir Shavitch, who had given *Campo* its first performance in 1922. The recordings were actually made on November 21, 1927, in the composer's presence.

No other records of Fabini's orchestral works seem to have been issued since, but the Chilean soprano Sofía del Campo recorded his song, *Luz Mala* on Victor 9483 together with some songs by Cluzeau-Mortet.

It was, however, in 1942 that perhaps the most important—but also the least known—series of records from the standpoint of the musical history of Uruguay were made. In that year, on August 11th, at the studios of the Argentine Odeon Company, the following records were made for its Uruguayan affiliate, Gioscia Hnos :

Matrix	*Title*	*Author of Words*	*Catalogue Number*
Performed by Maria Luisa Fabini de West, accompanied by Eduardo Fabini			
12169	Luz Mala	Trelles	60004
12170	Flores del Monte	Morales	
12171	El Nido Remedio	Silva Valdéz Trelles	60002
12174	El Poncho	Silva Valdéz	
12175	Triste	Regules	60003
12176	La Güeya	Trelles	
Performed by Eduardo Fabini			
12172	Triste No. 2	—	60005
12173	Triste No. 1	—	

All the works above are by Fabini. In addition on matrix numbers 12177 to 12180 (catalogue numbers 60000 and 60001) the same singer recorded songs by Chopin, Debussy and Castelnuovo-Tedesco, with an anonymous pianist, whom one likes to think may have been Fabini.

It is difficult to understand how Fabini's recordings could have been accomplished, for he was a man of extreme modesty and shyness and was very reluctant to appear in public ; only those who knew him well can be aware of how shy and modest he was. Nevertheless, somehow or other the records were made and were put on sale in Uruguay. They were in the nature of a private issue and did not appear in any catalogue ; information about them has been correspondingly difficult to obtain, and the matter was complicated by the fact that some of the catalogue numbers appear to have been assigned also to some records of popular Uruguayan music which were on general sale. That the details as given above are available is due to a search made by the Argentine Odeon Company, to whom I express my thanks for their co-operation.

Thanks to the efforts of the " Cículo Crítico del Disco ", a group of critics to which the author belongs, the Fabini titles above are to be issued on a 10-inch LP disc.

The only other records by Fabini that I have been able to trace are some white label Victrolas which he made for the Uruguayan Government with the baritone Víctor Damiani. These were not available for general sale, and information about them is still incomplete. Those titles which I know are :

		Catalogue number
Luz Mala	12-inch single-sided	1676
El Poncho	10-inch single-sided	1677
La Güeya *Remedio*	?	1678

No commercial records of Fabini's music have been issued during the LP era. The record industry is thus—according to one's point of view—under a serious obligation to the composer or in the happy state of having a promising field to till. Fabini's output was not large, but he made up for this lack of quantity by the quality of his most important works.

* * *

NOTE. A chronological list of Fabini's works with biographical data appears in *Compositores de América,* Vol. 2, 1956 (Music Section, Pan-American Union, Washington 6, D.C., U.S.A.). A copy of this may be consulted in the Institute's library, to which it was kindly presented by the Pan-American Union).

A 12-inch LP record (Arca FH.005) made under the auspices of the Uruguayan University of the Republic to commemorate the tenth anniversary of Fabini's death is in the Institute's archive thanks to the generosity of the author of this article. It consists of the following works :

Intermezzo No. 1 *Triste No.* 1	Hugo Balzo (pianist, who gave the first performance of Triste No. 1 in 1936)
Campo	SODRE Symphony Orchestra conducted by Lamberto Baldi
Flores del Monte *El Poncho* *Barquito* (text by Adela Marbiali) *Luz Mala*	Irma Schinca (soprano) and Juan Potrasi (pianist)
La Isla de los Ceibos, Overture	Bratislava Symphony Orchestra conducted by Juan Potrasi

Book Reviews

Broadway on Records—1900-1960 : A selected list of musical and dramatic performances on long-playing records, compiled by James L. Limbacher, 8 pp., duplicated typescript, Audio-Visual Department, Dearborn Public Library, 22100 Michigan Avenue, Dearborn, Michigan, U.S.A., 1961, free.

This list is confined to published monaural LP records of plays, musical comedies, one-man shows, revues, operettas, readings, vaudeville and burlesque. Information provided includes the title of the show, the dates of the first Broadway production and of revivals, the name of the composer, author or adaptor, the make of record and the (American) record catalogue number.

It is stated in the introductory note that the list omits " film, jazz or instrumental versions of musical comedies or dramas which do not contain some of the Broadway cast ", and Gilbert and Sullivan revivals are also left out.

In any future edition of this compilation—to which annual supplements are promised—it is suggested that rather fuller entries might be given, even if this were to mean that the publishing Library's generous policy of giving the work free on application had to be abandoned. For example, the first entry states " ANTA Albums featuring noted stars in scenes from hit plays " without indicating which stars, which plays, or the dates of first performance ; and against *The Ages of Man* there is no mention of Shakespeare. Although the list is clearly intended to be used in conjunction with other works of reference it would greatly add to its value if some simple classification symbols were included, so that the ignorant enquirer could see which entries related to—for example—revues or readings or operettas and so on.

These suggestions should not be taken as criticism of the compiler's and publisher's action in making available what will clearly be an extremely useful tool for the record librarian to possess.

A.H.

A Selected List of Recorded Musical Scores from radio, television and motion pictures, compiled by James L. Limbacher, 27 pp., duplicated typescript, Audio-Visual Department, Dearborn Public Library, 22100, Michigan Avenue, Dearborn, Michigan, U.S.A., 1961, free.

This very useful compilation—made, like that reviewed above—by the Director of the Audio-Visual Department of Dearborn Public Library—consists of lists of monaural records in the following categories of music—from full-length films on 33 r.p.m. discs ; from films on 45 r.p.m. discs ; what are described as " outstanding film scores " on 78 r.p.m. discs not yet transferred to LPs ; music from short films, from radio and television feature programmes ; and a list of composers of film music.

Information provided includes the title of the film or programme, the name of the film producing or releasing company and the availability or otherwise of the film in 16 mm form, the year of release and the composer's name. Details of performers are not included. The record catalogue numbers given are American except that where a record has not been issued in America the European or other local catalogue number is quoted.

The introduction states that the lists are confined to specially composed instrumental film scores and do not include musical comedies or theme songs ; it is intended to publish annual supplements.

The publication is a valuable pioneer enterprise and the compiler and publisher deserve the thanks of all those concerned in tracing film music records not only for producing the work but also for generously offering to send it to applicants free of charge.

A.H.

Animal Sounds and Communication. Edited by W. E. Lanyon and W. N. Tavolga, Washington, D.C., American Institute of Biological Sciences, 1960, 458 p., illus., with 12-inch 33 r.p.m. record, $9.50.

This book has arisen from papers presented to a symposium of the Ecological Society of America in the section " Animal Behaviour and Sociobiology " ; to the papers presented there have been added later two more at the invitation of the editors.

It is perhaps due to the original structure of the symposium that the book presents such an unbalanced coverage of the field of biological acoustics. Many important aspects are missing, such as the acoustics of invertebrates other than insects, insects other than Orthoptera and Cicadas, and terrestrial and aquatic mammals (including Man) ; furthermore the important subject of sound reception, with its immediate bearing on aspects such as the discrimination and recognition of sounds, is only touched on in passing by some of the contributors. Of course, it can at once be argued that this volume is not a text book nor an encyclopaedia of biological acoustics, although the title does not indicate any particular limitations ; but even the papers presented are not well balanced as regards subject matter, almost half the text being taken up by Mr. Bogerts contribution on the acoustics of amphibia and reptiles. Now this is an excellent and important paper but if it had been of commensurate length with other papers room would have been available for increased coverage of the subject.

The general unbalance extends to some of the papers themselves ; for example, although that of D. J. Borror is entitled " The Analysis of Animal Sounds " it is virtually restricted to an account of the analysis of bird song by one type of audiospectrograph. One is tempted to ask, what of waveform analysis, intensity analysis, line spectrographs, and what of the structures of sounds other than those of birds ? Another and perhaps more serious aspect of imbalance is that many of the cited references in several papers are only to American work ; for example, in the paper by C. F. Hockett there does not seem to be a single reference to work outside the United States, whereas it is well known—at least to a European reviewer—that a great deal of work on exactly this subject—logical considerations and information theory in communication—has been done and is going on in the Old World.

The papers themselves comprise many approaches ; Professor Kellogg contributes a review on recording and recording equipment with some useful practical points. Dr. Alexander's paper on insect sounds comprises a rather one-sided review of the literature with some very interesting speculations calculated to start many a controversy. The paucity of observations on fish noises is pointed out by W. N. Tavolga who joins with P. Marler, in his paper on bird song and mating, in pointing out the great range of research which must be undertaken before even an idea of the width of field can be obtained. Because of the scant data available it seems very premature to talk yet of " the classification " of animal sounds, but the paper by N. E. Collias, on the ecological and functional classification of animal sounds, outlines one of the more promising preliminary approaches to this. Finally, C. F. Hockett contributes an interesting comparative study of animal noises in relation to information theory.

Despite the general criticisms made above the book contains much interesting and important information, is well produced and has a fairly adequate index. A useful adjunct is the demonstration record ; although its quality leaves much to be desired it offers the great advantage to the reader of being able to hear and contrast the actual sounds of animals—something which no amount of oscillograms or spectrographs can replace.

The appearance of this book does underline the emergence in recent years of research on biological acoustics as a separate study ; however, this would seem to be too narrow a view for a subject which is distinct only as regards its special techniques. It should and must for complete integration into zoology, embrace at least part of the disciplines of physics, physiology and psychology and of course zoology itself. It will be interesting to see how this fascinating and lively field of biology develops in the future.

P. T. HASKELL

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